

U.S. Serial Number: 10/735,468
Reply to Office Action of: 10/18/2006
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REMARKS

Reconsideration of this application is requested. The claims submitted for reconsideration are claims 1 – 15.

I. Claims 1 – 15

The rejection of claims 1 – 15 under 35 U.S.C. §102(b) over Brignac, U.S. Patent 6,197,178, is respectfully traversed.

Anticipation is not appropriate when the cited references fail to describe each and every element

As an initial matter, Applicants respectfully submit that a rejection under 35 U.S.C. 102 is not appropriate, as the statements provided in the final Office Action mailed on October 18, 2006 do not demonstrate that a reference has described each and every element of the claimed invention.

In the final Office Action, the Examiner states that the disclosure of using virgin naphtha in Brignac constitutes anticipation of the use of olefinic naphtha in the claimed invention. The Office Action does not state that virgin and olefinic naphtha are somehow equivalent. Instead, the Office Action states:

“Because most naphthas will have olefins, one skilled in the art will use any naphtha that is easily available, including naphtha with high olefins. Virgin naphtha is only available in very small quantities and one skilled in the art will not wait for its availability.”

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Even if considered in the most favorable light, the above rationale simply does not meet the standards for anticipation. The Brignac reference does not describe an activation process using olefinic naphtha. Thus, a rejection under 35 U.S.C 102 is not proper.

The claimed invention is patentable in view of the cited reference

The remainder of the discussion will be directed to demonstrating that the claimed invention is nonobvious and therefore patentable in view of the cited reference. As noted above, Brignac does not explicitly describe the use of olefinic naphtha for catalyst activation. In fact, Brignac does not provide any suggestion that olefinic naphtha can be substituted for virgin naphtha during catalyst activation.

Brignac does describe the use of olefinic naphtha for hydrodesulfurization at Col. 3, line 32 – Col. 4, line 67. Brignac further describes tests to determine the effectiveness of catalyst activation in Examples 1 and 2. In these tests, an already activated catalyst is exposed to a cat naphtha feed to determine the activity of the catalyst over time. However, all of the description provided in Brignac for catalyst activation requires the use of virgin naphtha. This corresponds to the invention claimed in Brignac, and no suggestion is provided that cat naphtha (or another olefinic naphtha) can be used instead of virgin naphtha for activation.

No motivation existed for those of skill in the art to modify Brignac to arrive at the claimed invention.

Brignac provides no suggestion or motivation to modify the teachings of Brignac to arrive at the claimed invention. Therefore, in order to form a prima facie case of obviousness, a motivation or suggestion to modify Brignac by substituting olefinic naphtha for virgin naphtha would need to be provided either by the nature

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of the problem to be solved, or by the knowledge of one of ordinary skill in the art. (See *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000); MPEP 2143.01(I).) Neither of these sources provides such a motivation.

The catalysts activated by the claimed invention and in Brignac are catalysts for hydrodesulfurization of a naphtha feed. During hydrodesulfurization, the goal is to remove sulfur while retaining as many olefins as possible. While it is desirable to retain as many olefins as possible, the primary goal of the process is to remove sulfur.

One of the reasons that hydrodesulfurization catalysts are activated prior to use is due to the potential for rapid degradation of the hydrodesulfurization activity of the catalyst. As catalysts are exposed to naphtha feeds, the catalysts lose activity over time, eventually becoming irreversibly deactivated. (See paragraph 10 of the specification. Brignac similarly highlights this concern at Col. 2, lines 1 – 13.) Prior to activation, the catalyst is particularly susceptible to deactivation if highly reactive species are present, such as olefins. Thus, the nature of the problem to be solved by the activation step is to prevent active species, such as olefins, from coking or otherwise causing deactivation of the hydrodesulfurization activity.

Conventionally, hydrodesulfurization catalysts were “activated” using an all gas phase process by exposing the catalyst to sour gas (e.g., natural gas containing H₂S). Brignac provides a method that also includes a liquid phase, which is more commercially convenient. Virgin naphtha was selected in Brignac for the activation step in order to avoid introducing olefins to the catalyst prior to activation. Since the nature of the problem to be solved is to prevent olefins and other active species from deactivating the catalyst, one of skill in the art would not be motivated to use an olefin-containing naphtha in place of the virgin naphtha in Brignac. Similarly, the knowledge of one of ordinary skill in the art cannot

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provide the motivation to modify Brignac, as using olefinic naphtha would be expected to be ineffective for activating a hydrodesulfurization catalyst due to the presence of highly reactive olefins.

Applicants have now discovered that olefinic naphtha can be substituted for virgin naphtha without degradation of catalyst activity. This is an unexpected result in view of the conventionally understood need to activate hydrodesulfurization catalysts prior to exposure to olefins. The fact that applicants discovered the suitability of olefinic naphtha for activation of a hydrodesulfurization catalyst, a finding contrary to accepted wisdom, is itself evidence that the claimed invention is not obvious. (See *In re Hedges*, 783 F.2d 1038 (Fed. Cir. 1986); MPEP 2145 (X.D.3).)

II. The performance of the claimed activation process is unexpectedly improved relative to Brignac

In addition to retaining the same hydrodesulfurization activity as the activation method of Brignac, Applicants have also unexpectedly discovered that the claimed activation method reduces the amount of olefin that is saturated during hydrodesulfurization. Examples 1 – 4 in the specification provide a comparison between the activation method of Brignac and the claimed activation method. In each example, the claimed activation method provides similar hydrodesulfurization activity as Brignac, while also providing a reduced level of olefin saturation.

For at least these reasons, the claimed invention is not obvious in view of Brignac. Applicants respectfully request reconsideration and withdrawal of the obviousness type double patenting rejection in view of Brignac.

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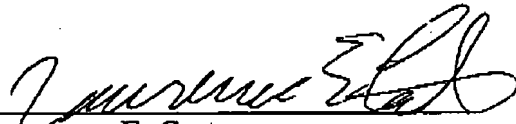
III. Conclusion

Having demonstrated that all rejections of claims have been overcome, this application is in condition for allowance. Accordingly, applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: P2003J007).

Respectfully submitted,



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☒ Pursuant to 37 CFR 1.34(a)

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